

APR 19 2007

Docket No. UCIP163
US App. No. 09/771,516

REMARKS**Status of the Application**

Claim 1 was previously pending. Claim 1 was objected to for informalities. Claim 1 was rejected under 35 USC 112, second paragraph. Claim 1 was further rejected under 35 USC 103(a) as being unpatentable over Tsai et al. (US 6,135,427) in view of Unoguchi (US 4,449,188) or Kirchner et al.(US 4,146,775).

Applicant has amended claim 1 and added new claims 2-3. Applicant has also amended the specification to correct informalities. A substitute specification is enclosed herewith. No new matter adds through the amendments. For the reasons discussed below, withdrawal of the rejections is requested.

Claim Objections

Claim 1 was objected to for informalities. More specifically, claim 1 includes reference characters which are not enclosed within parentheses.

Claim 1 has been amended to enclose reference characters in parentheses.

Withdrawal of the objection is requested.

Claim Rejections- 35 U.S.C. 112, Second Paragraph

Claim 1 was rejected under 35 USC 112, second paragraph.

Applicant has carefully reviewed and amended claim 1. It is believed the amendments made to claim 1 overcome the rejections.

Withdrawal of the rejection is requested.

Claim Rejections- 35 U.S.C. 103(a)

Claim 1 was further rejected under 35 USC 103(a) as being unpatentable over Tsai et al. (US 6,135,427) in view of Unoguchi (US 4,449,188) or Kirchner et al.(US 4,146,775).

Applicant respectfully traverses the rejections for reasons discussed below.

The amended claim 1 reads as:

1. A protective circuit for a supersonic humidifier comprising:
an input terminal of a DC source;
a voltage stabilizing circuit connected to said input terminal of the DC source;
a drive circuit for driving an ultrasonic vibrating member, the drive circuit having a voltage dividing circuit and being electrically connected to said voltage stabilizing circuit;
a compare circuit electronically connected to the drive circuit, the compare circuit having an OP amplifier with a first pin, a second pin, and a third pin;
wherein the ultrasonic vibrating member has a first terminal and a second terminal, the first terminal is connected to a first node of the drive circuit, the first node is electrically connected to the voltage stabilizing circuit, the first node is also electrically connected to two serially connected resistors of the compare circuit, the two resistors divide voltage from the voltage stabilizing circuit, a second node between the two serially connected resistors is electrically connected to the third pin of said OP amplifier; and
the second terminal is connected to the voltage dividing circuit, the voltage dividing circuit is connected to a first resistor of the compare circuit, a third node between the voltage dividing circuit and the first resistor is connected to the second pin of the OP amplifier;
wherein working current and working voltage of the ultrasonic vibrating member changes when water in a water tank of the supersonic humidifier is used up so that voltage at the second terminal increases, resulting in a voltage increase at the second pin of the OP amplifier; and when voltage at the second pin becomes higher than that at the third pin, the OP amplifier turns off, which in turn turns off transistors of the drive circuit so as to stop the operation of the ultrasonic vibrating member for protecting the supersonic humidifier.

Tsai at least does not teach or suggest the above emphasized features of claim 1.

In the present invention as defined in claim 1, the second terminal P2 of the ultrasonic vibrating member is connected to a voltage dividing circuit of the drive circuit, the voltage dividing circuit is connected to a resistor (R12) of the compare circuit, a node between the voltage dividing circuit and the resistor (R12) is connected to the second pin of the OP amplifier. Tsai teaches an ultrasonic vibrating member 12, but he fails to teach or suggest that the second terminal (the negative terminal as shown in Fig. 13) of the ultrasonic vibrating member 12 is connected to a voltage dividing circuit.

In the present invention, when the water level in the water tank is normal, the ultrasonic vibrating member operates normally, so that the working current and working voltage at terminal P2 will have a normal value. Under this normal condition, the signals from terminal P1 and terminal P2 to pin 2 and pin 3 of the OP amplifier are normal and the OP amplifier is in an ON state with the input voltage at pin 3 being large than that at pin 2. At this time, the output voltage at the output pin 1 is the same as that at pin 3, which allows the IC (IC1) work normally. And

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the transistors Q1 and Q2 in the drive circuit (B) are ON, enabling the ultrasonic vibrating member to work normally. When the water level in the water tank is too lower or the water is used up, the working current and working voltage of the ultrasonic vibrating member changes and the voltage at terminal P2 increases, that causes the voltage at pin 2 to increase. When voltage at the second pin becomes higher than that at the third pin, the OP amplifier turns off, which in turn turns off transistors of the drive circuit so as to stop the operation of the ultrasonic vibrating member for protecting the supersonic humidifier.

Tsai does not teach or suggests the above features. In fact, Tsai solves the overheat problem of the ultrasonic vibrating member 12 by providing a water detection circuit 433 connected to a water detecting means 10 in the water tank, as shown in Figs. 10, 13 and described on Col. 4, line 51 to col. 5, line 4. Tsai is totally silent about increasing the voltage at terminal 2 of the ultrasonic vibrating member when water is used up so as to turn off an OP amplifier and stop the operation of the ultrasonic vibrating member.

The Office Action cited Kirchner to teach an amplifier accepting signals from the first and second terminals of a protective circuit of a humidifier, and cited Unoguchi to teach an amplifier having inputs J1 and J2 for comparing a humidity level 3 and a voltage from a divider circuit for controlling the output. However, clearly neither Kirchner nor Unoguchi can cure the above discussed deficiencies of Tsai.

For the reasons discussed above, claim 1 is believed patentable over Tsai, Kirchner, and Unoguchi.

New Claims

New dependent claims 2-3 have been added to more fully protect the invention.

Conclusion

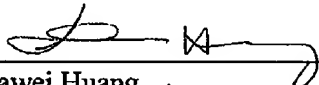
In view of the foregoing amendments and remarks, it is respectfully submitted that the remaining claims are now in condition for allowance. Allowance of this application is earnestly solicited.

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Respectively submitted
J.C. PATENTS

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4 Venture, Suite 250
Irvine, CA 92618
Tel.: (949) 660-0761


Jiawei Huang
Registration No. 43,330